Defense Finance and Accounting Se

DFAS System Life Cycle (SLC 6.0)

Introduction

Your Financial Partner @ Work

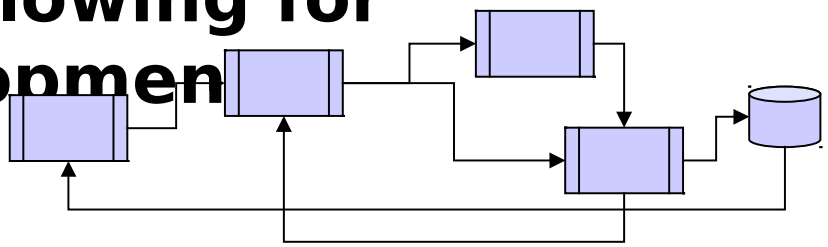
DFAS-DTC
2002 & 2003

DFAS System Life Cycle (SLC)

- What is a Life Cycle?
- Life Cycle Management (LCM)
- Tailoring for Best Fit to Each Program
- The Structure of the DFAS System Life Cycle
- What is the Value to DFAS?

What is a Life Cycle?

- **A Life Cycle**
  - **is an ordered set of activities that occur through the life of a product or project;**
  - **includes the inception of the effort, through the creation of its result, through continuing maintenance, to the phase out of the result;**
  - **may be iterative, allowing for evolutionary development**



Who has a Life Cycle?

Big Programs

Rush Projects

COTS Implementations

Approved Projects

Changes to Existing Systems

New Development

Little Programs

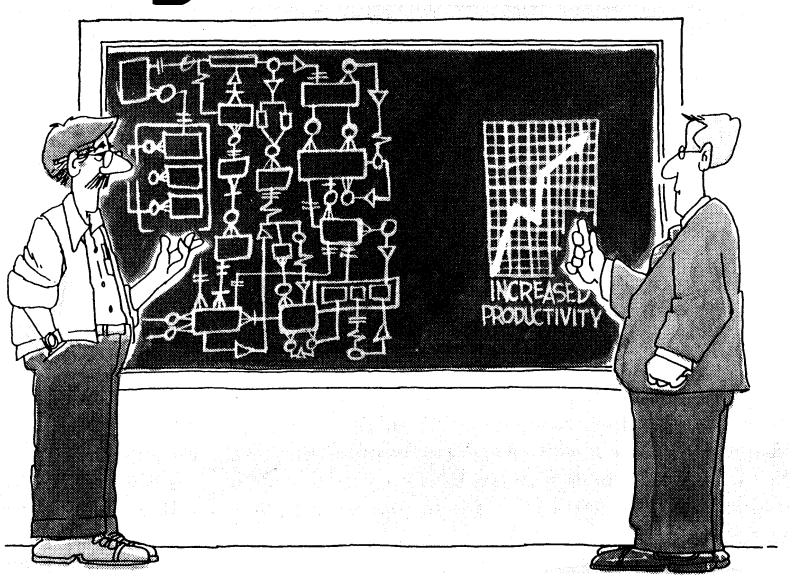
Systems Management

Programming Projects

ALL of the Above

Life Cycle Management

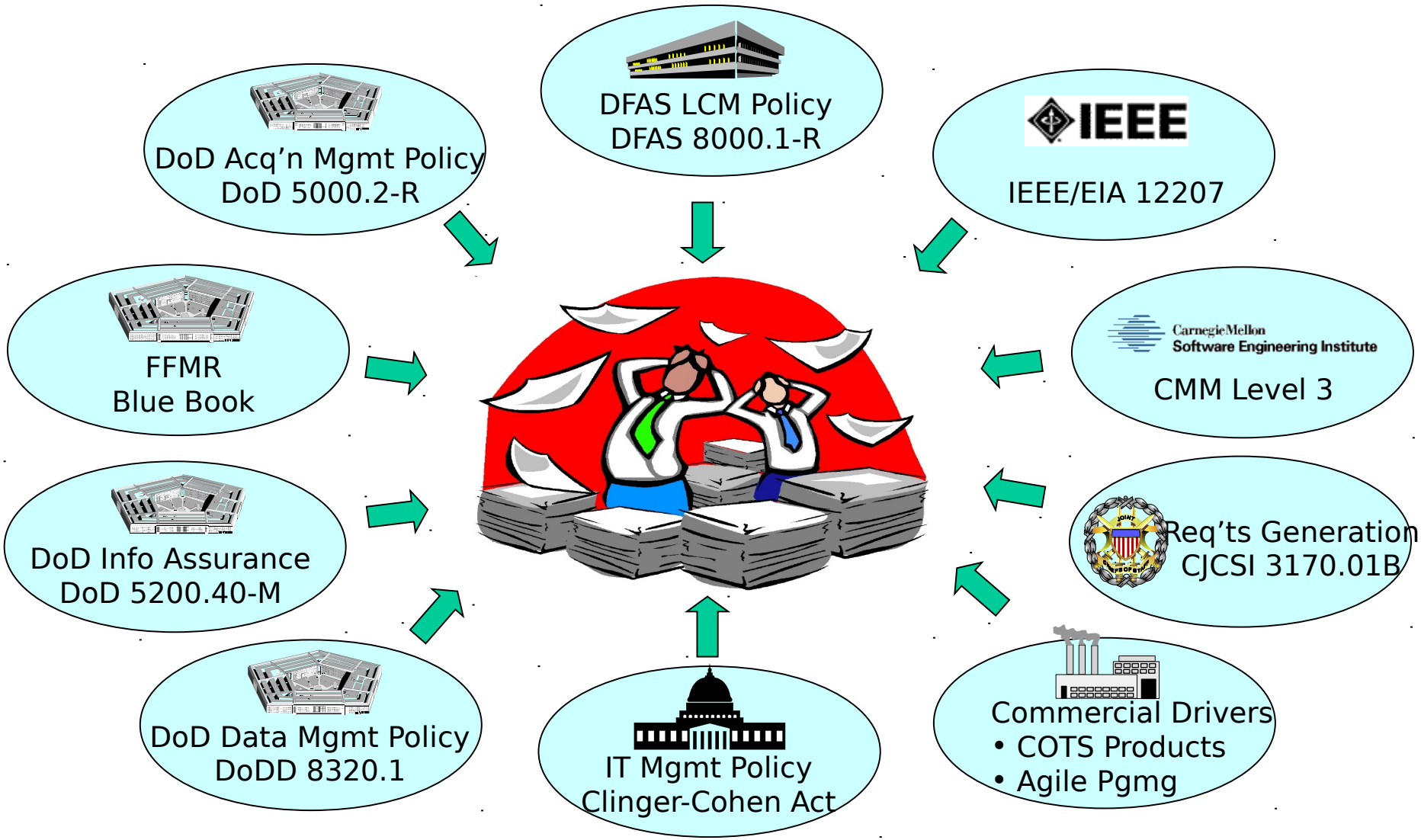
- **Better Planning and Better Communication**
  - **reduces cost, errors, rework;**
  - **increases confidence, completeness, management support;**
  - **reduces risk.**



The Charges Against LCM

- It costs extra.
- It costs too much.
- It’s make-work.
- It’s done after the fact.
- It’s not really required.
- Nobody does it; why do I have to?
- I already know how to do my job.
- It’s documents. I hate documents.
- No one uses what it produces.
- It does not help the decision process.
- It does not contribute to my getting the job done.
- If you say “process” one more time, I’ll...

Overwhelming Challenge



DFAS Life Cycle Objectives

- Active Customer participation
- Accurate and timely implementation of Customer requirements
- Realistic and achievable planning
- Sound management accountability
- Responsible system development, deployment/implementation, and operation
- Trusted security administration
- Establishment of cost, schedule, and requirements control mechanisms that facilitate high visibility for executive oversight

System Life Cycle - Benefits (1)

- **Support and encourage the use of program management & software management "best practices"**
  - **IEEE standards**
  - **Industry-proven practices**
- **Plan and execute program activities consistently**
  - **Be able to understand and compare projects across DFAS**
  - **Decisions have the same meaning**
  - **Understand the implications when a program does it a different way**
- **Provide flexibility and visibility to DFAS management, PMs, TPOs, and SMs**
  - **Be able to tailor to the program's situation**

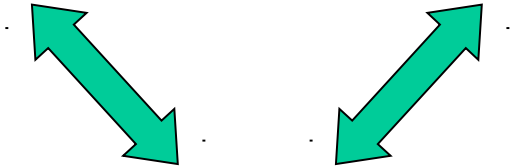
System Life Cycle - Benefits (2)

- **Help PMs and SMs to assess and manage risk**
- **Comply with DoD guidance as a natural part of getting the work done**
- **Support multiple approaches**
  - **Development and COTS-Customization**
  - **Incremental, evolutionary, and traditional**
- **Enable information assurance / security planning**
- **Help create a reliable and supportable system**

Related Initiatives

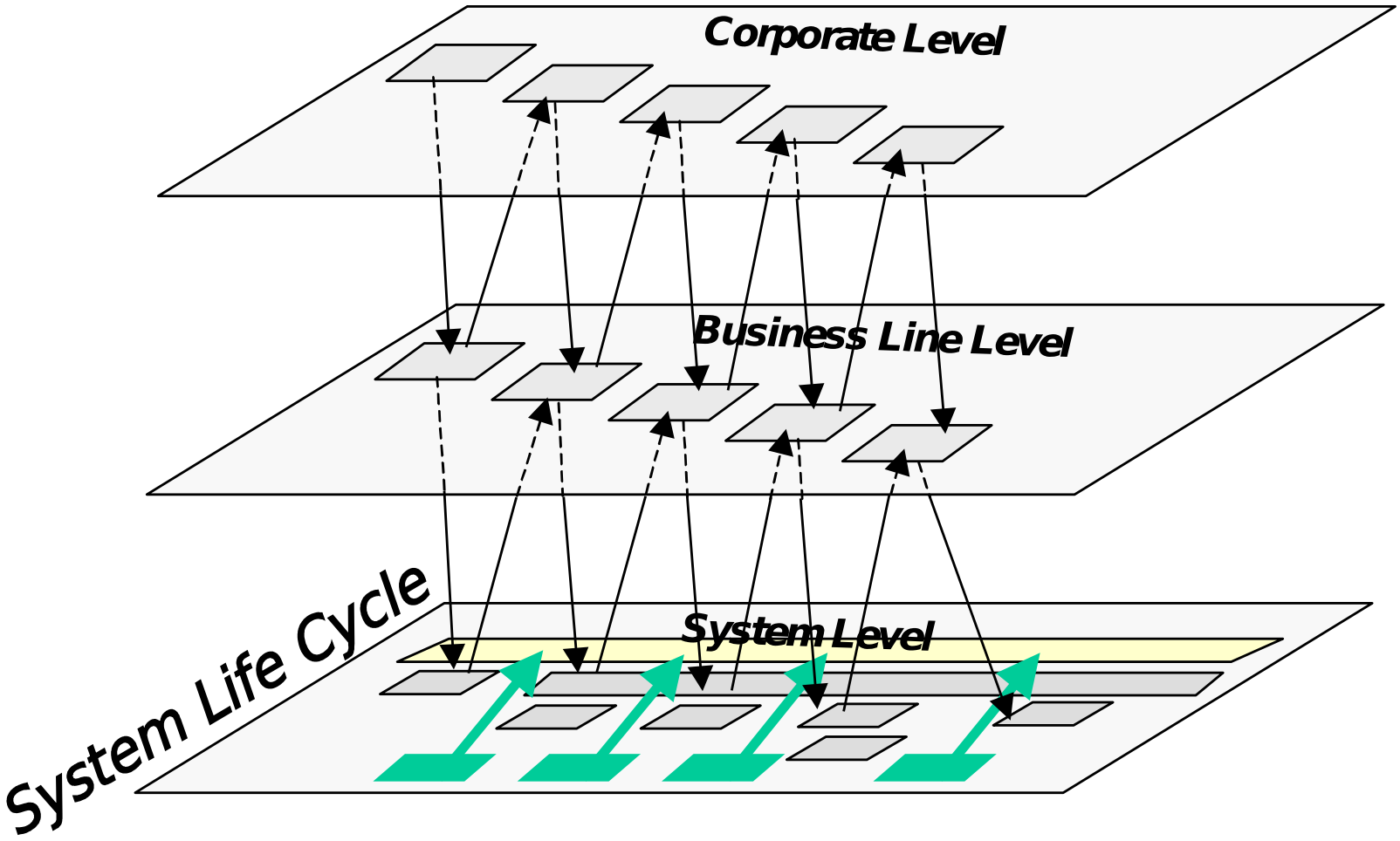
Portfolio Management

Requirements Integration & Management

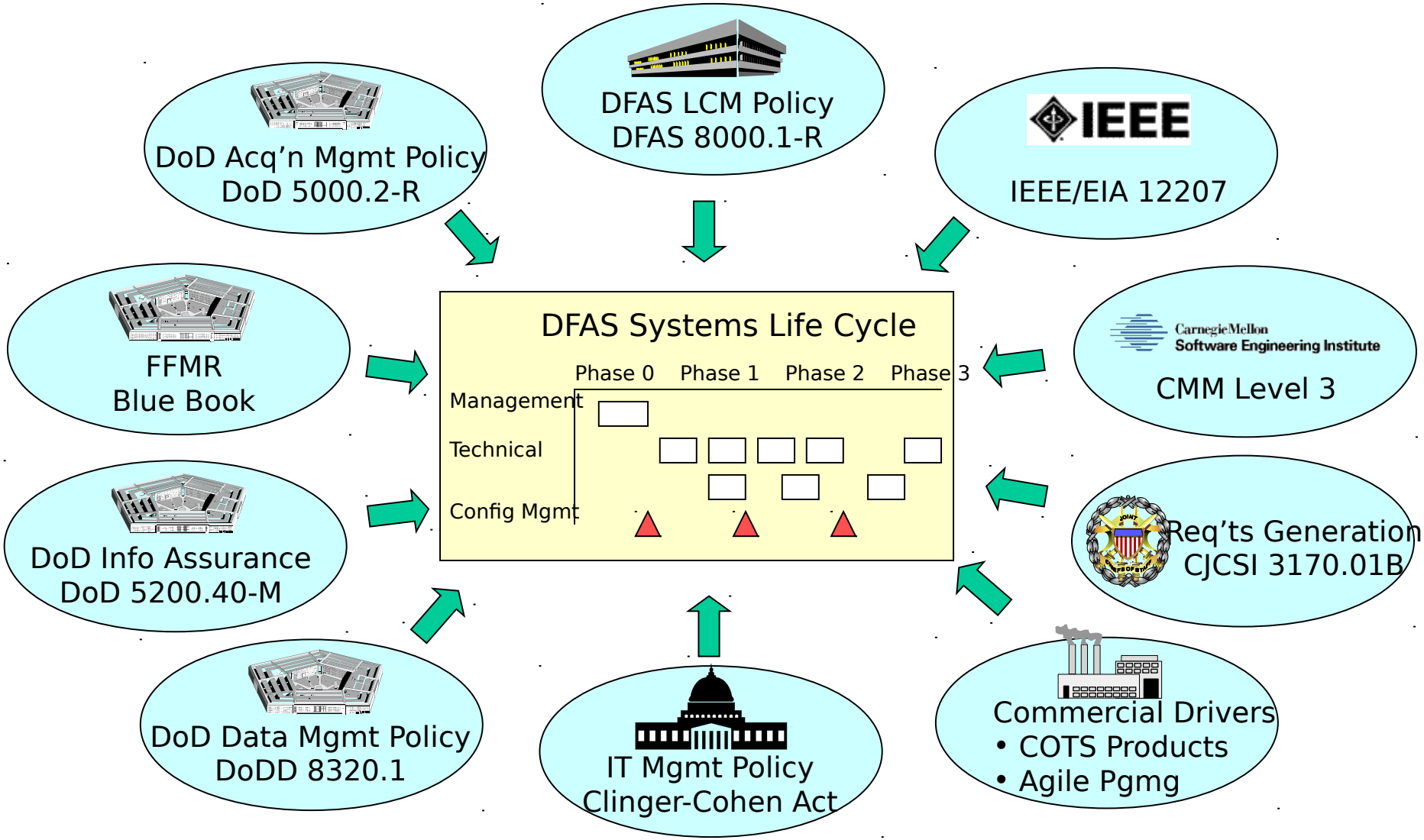


System Life Cycle

Integrate with Requirements Management

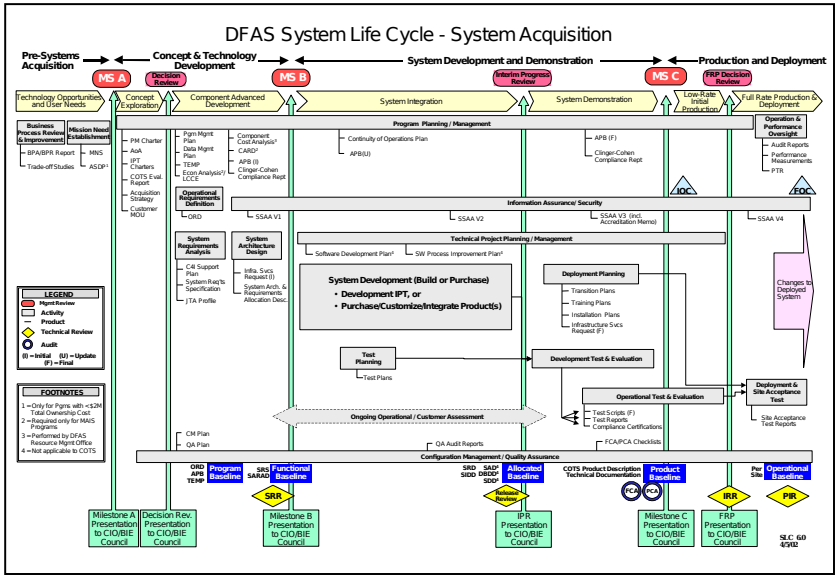


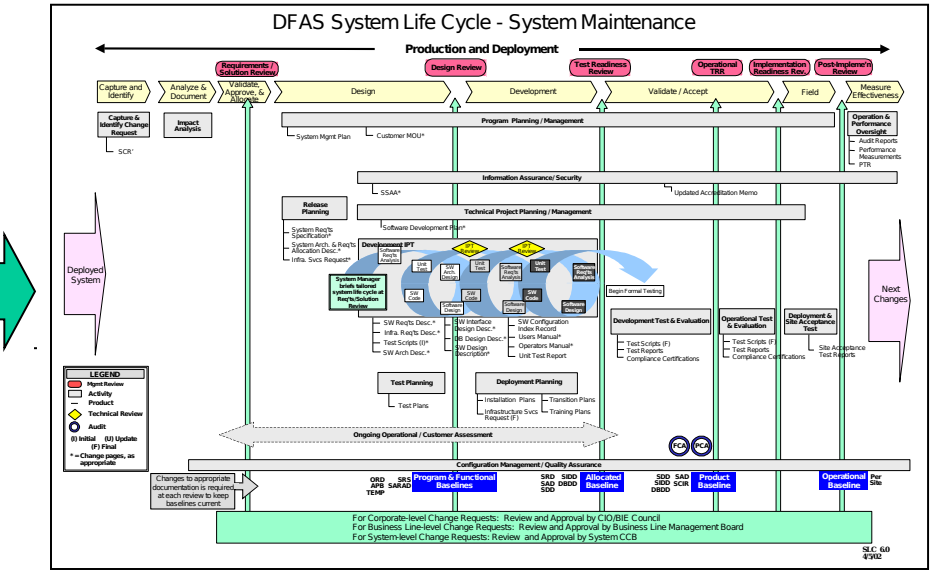
Reduced to One Actionable Framework



DFAS System Life Cycle

System Acquisition

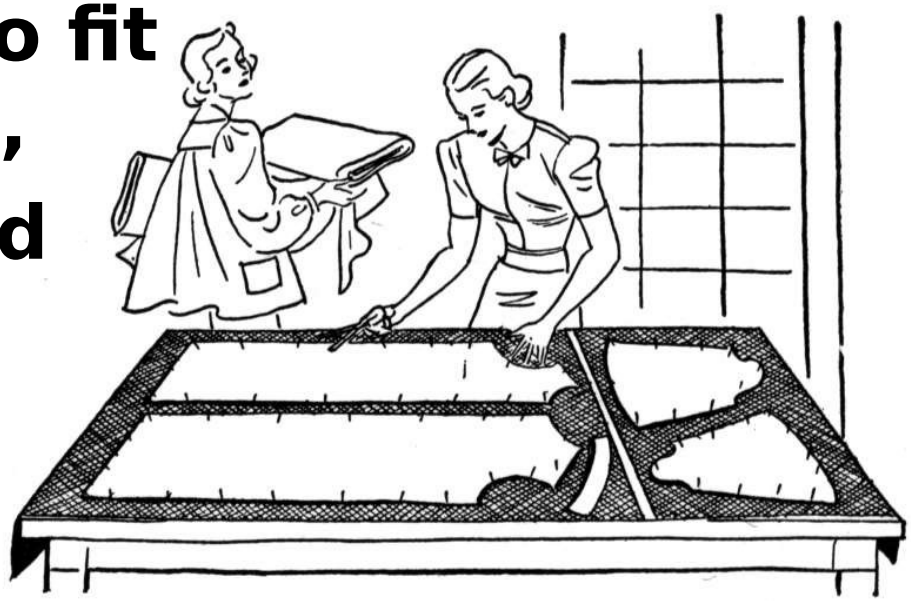




System Maintenance

Tailoring from a Pattern

- **Having a Pattern to follow, one can:**
  - **adjust the size,**
  - **fit the nature of a different fabric,**
  - **add trim and appearance features,**
  - **alter sections to fit different needs,**
  - **reuse styles and techniques.**



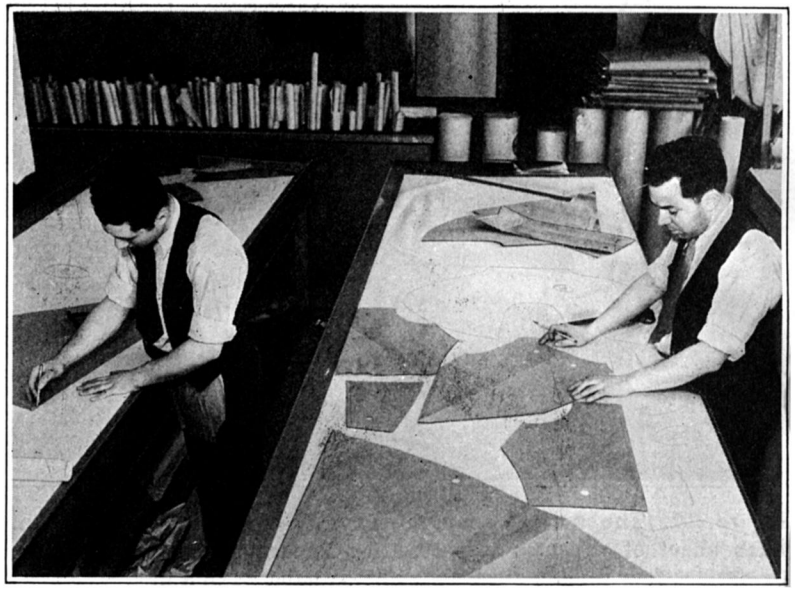
Tailoring the SLC for a Program

- **Programs tailor the SLC to their situation**
  - **Tailoring is based on:**
    - **Implementation Strategy**
      - **Development or COTS or modified COTS**
      - **Incremental, evolutionary, traditional**
    - **Complexity / Cost / Oversight**
      - **(ACAT IAM vs. ACAT IAC vs. ACAT III A,B,C)**
    - **Management Risk**
- **SLC is part of the Acquisition Strategy**
    - **PM briefs the program's tailored SLC at Decision Review**
- **Tailoring assistance provided by DFAS-DTC**
    - **Tailoring expertise; library of "common tailorings"**

What DTC Does to Help Programs

- **Active assistance in SLC tailoring**
  - **Provide LCM expertise**
  - **Identify risks and issues**

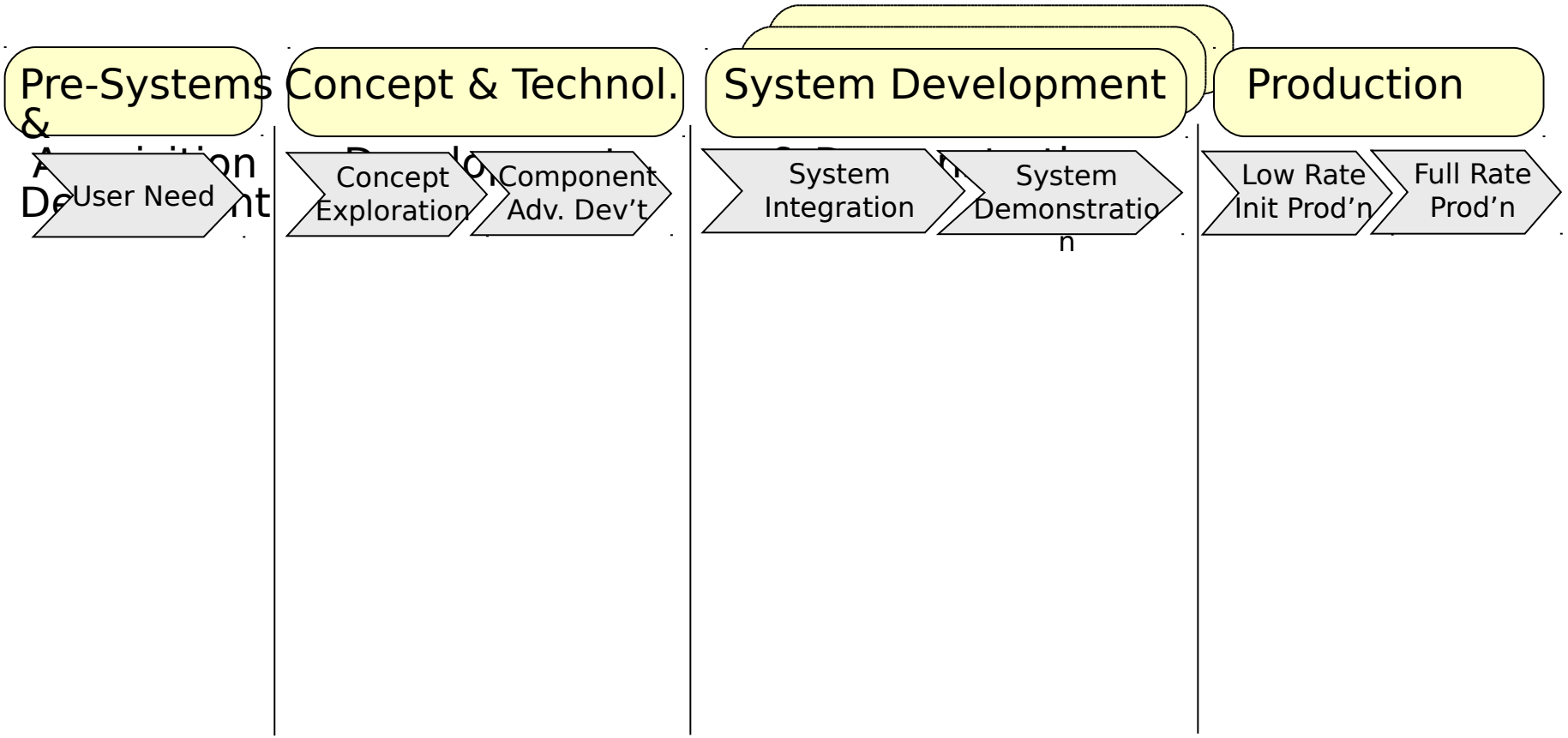
- **Help Prepare for Milestone Reviews**
  - **Coaching on Preparing the CIO/BIE Presentation**
  - **Identify issues and hole**
  - **Review Dry Run**
  - **Help understanding key issues from the viewpo of the CIO/BIE Council**



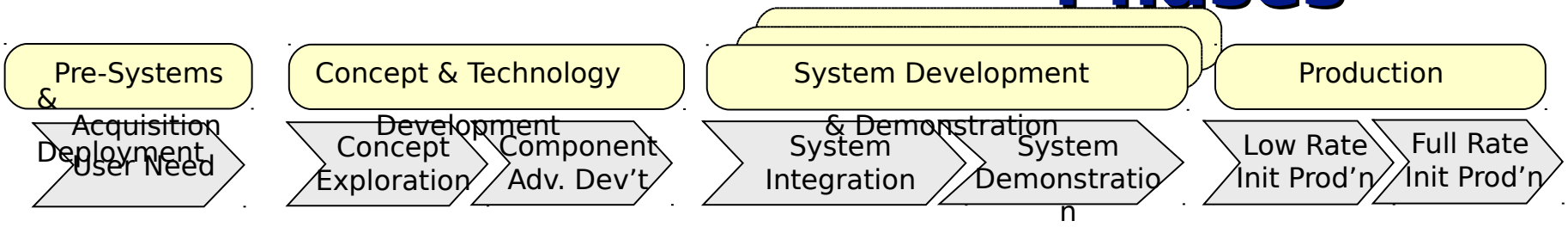
Elements of a System Life Cycle

- Phases
- Activities (Processes)
- Information
- Reviews & Audits
- Milestone decision points
- Baselines
- Validation & Verification

SLC Phases


Pre-Systems & Acquisition Development
Concept & Technol. Development
System Development & Demonstration
Production
User Need
Concept Exploration
Component Adv. Dev't
System Integration
System Demonstration
Low Rate Init Prod'n
Full Rate Prod'n

SLC Activities that Span Phases



Program Planning / Management

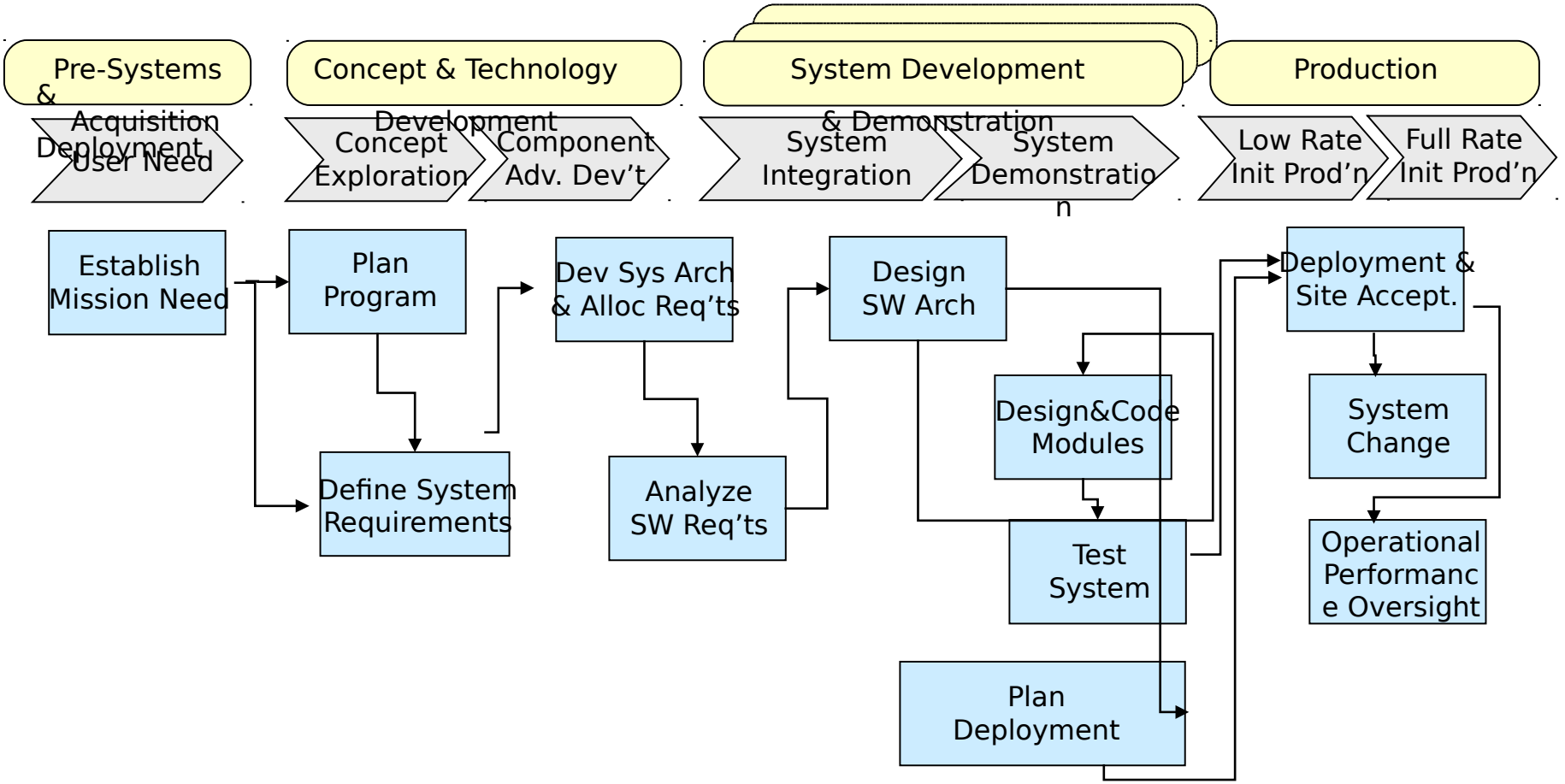
Information Assurance / Security

Technical Project Planning / Management

Ongoing Operational / Customer Assessment

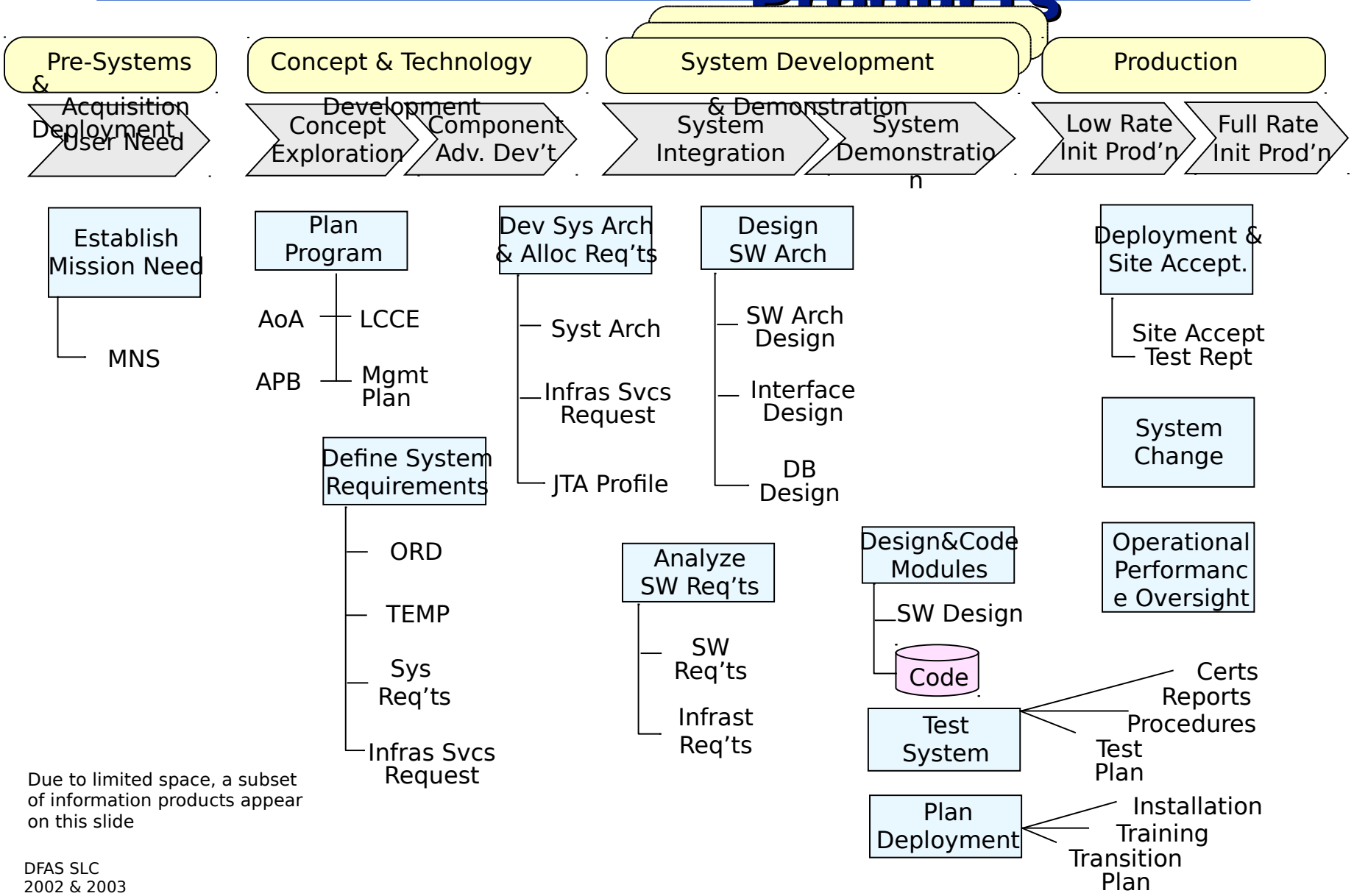
Configuration Management / Quality Assurance

SLC Activities



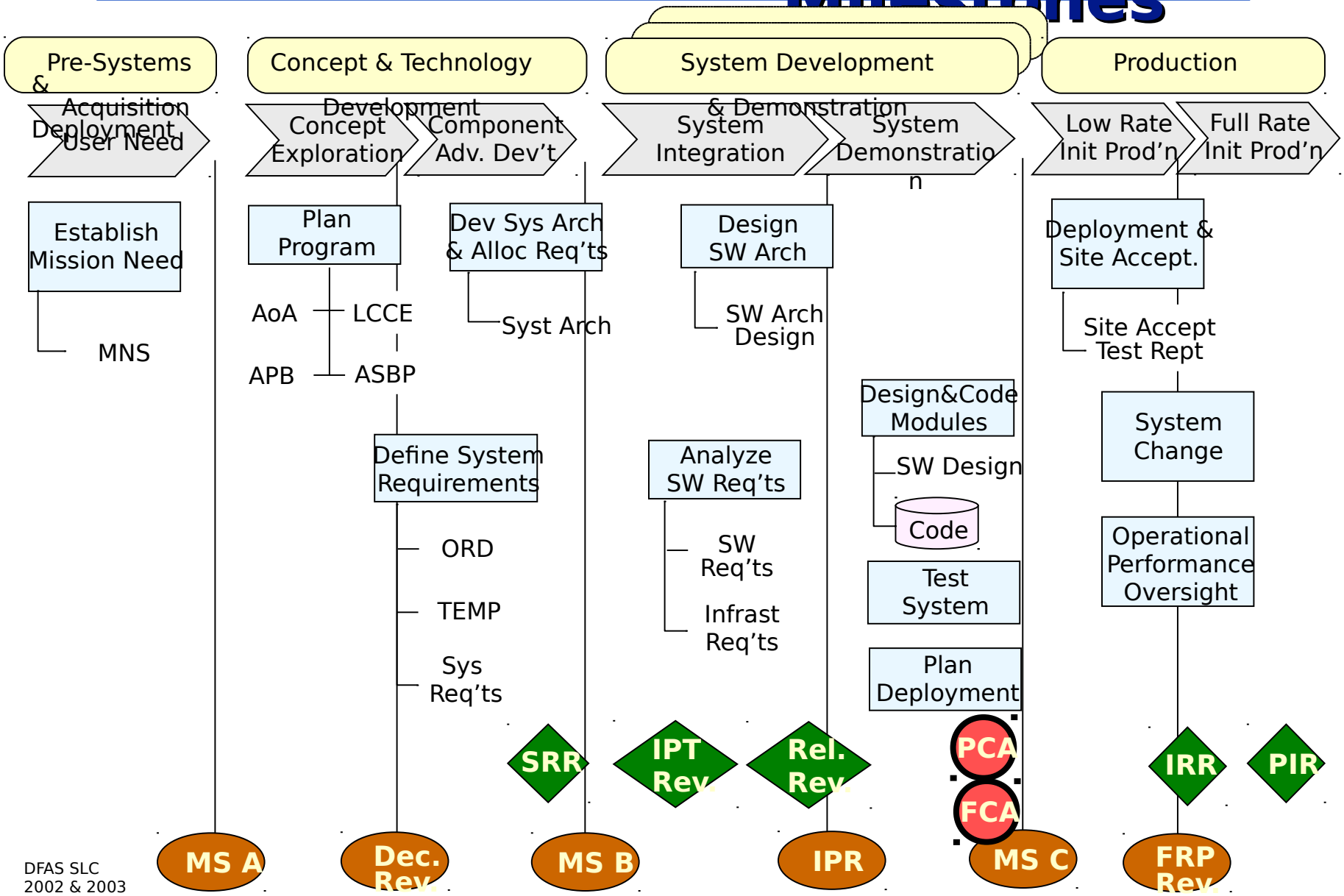
Due to limited space, a subset of SLC Activities appear on this slide

SLC Information Products

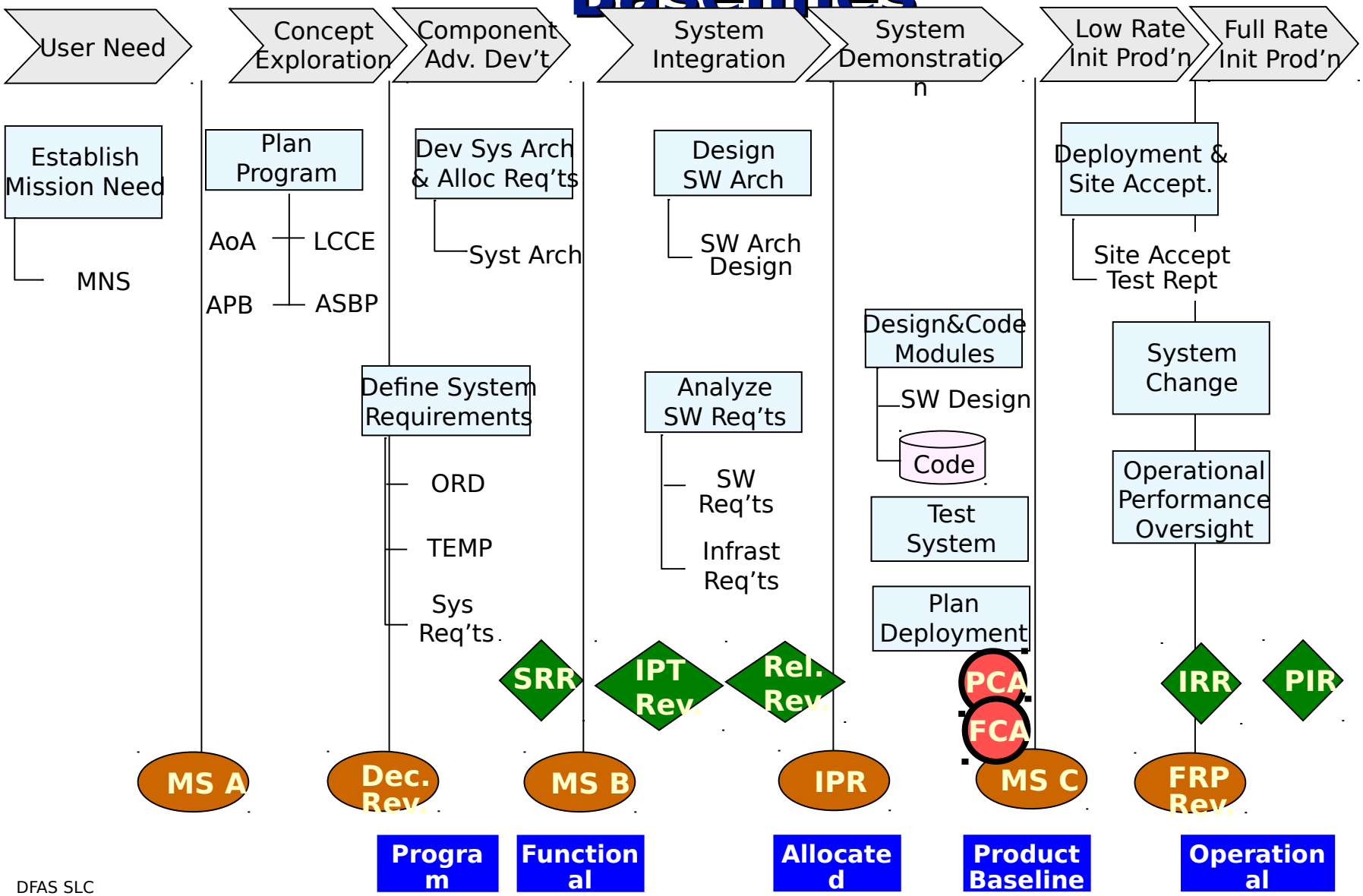


Due to limited space, a subset of information products appear on this slide

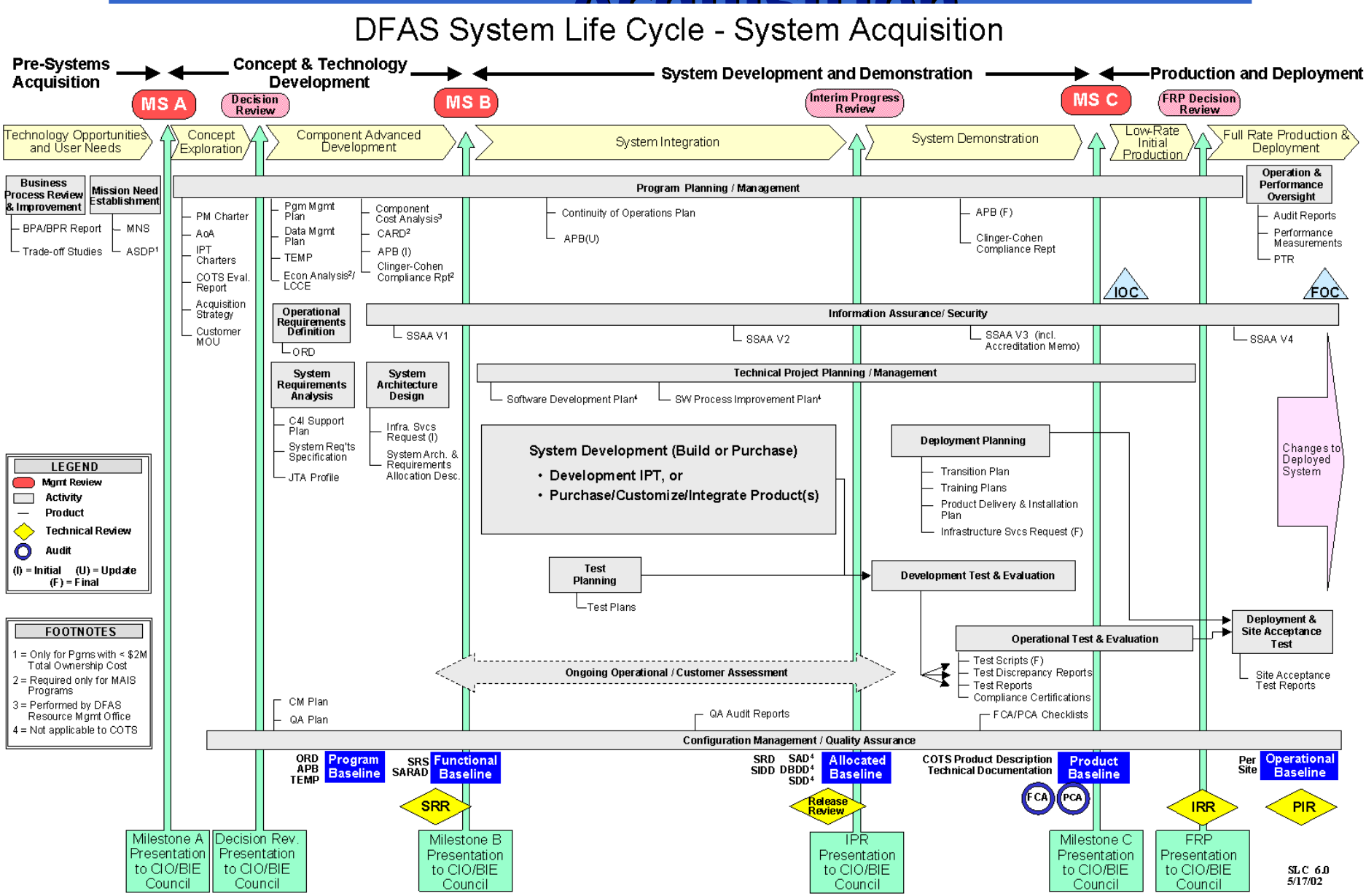
SLC Reviews, Audits, Milestones



SLC Baselines

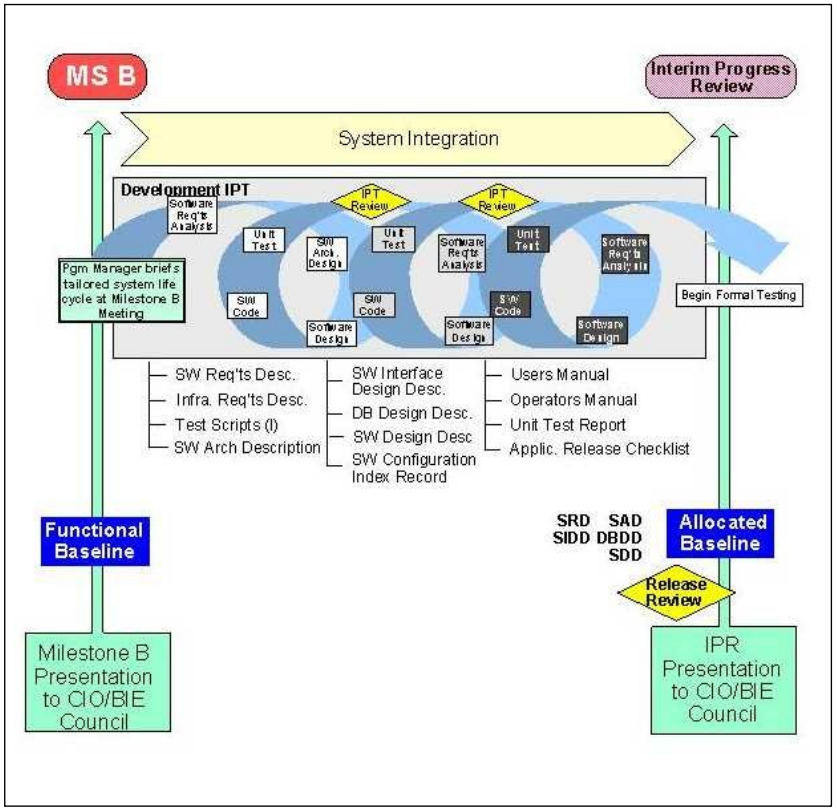


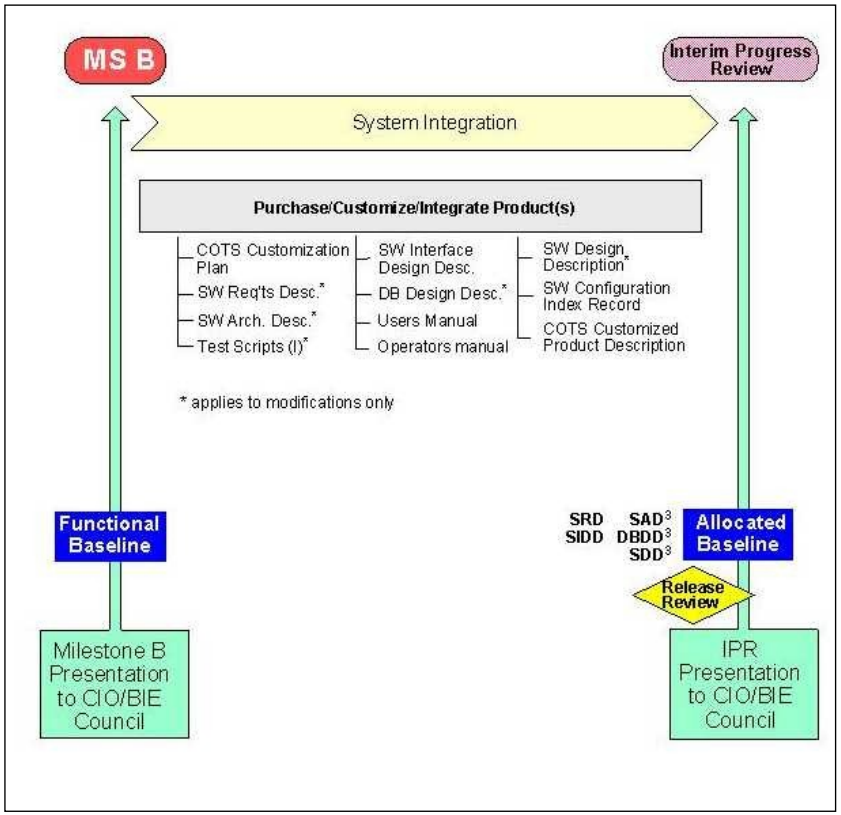
System Acquisition



Development Alternatives

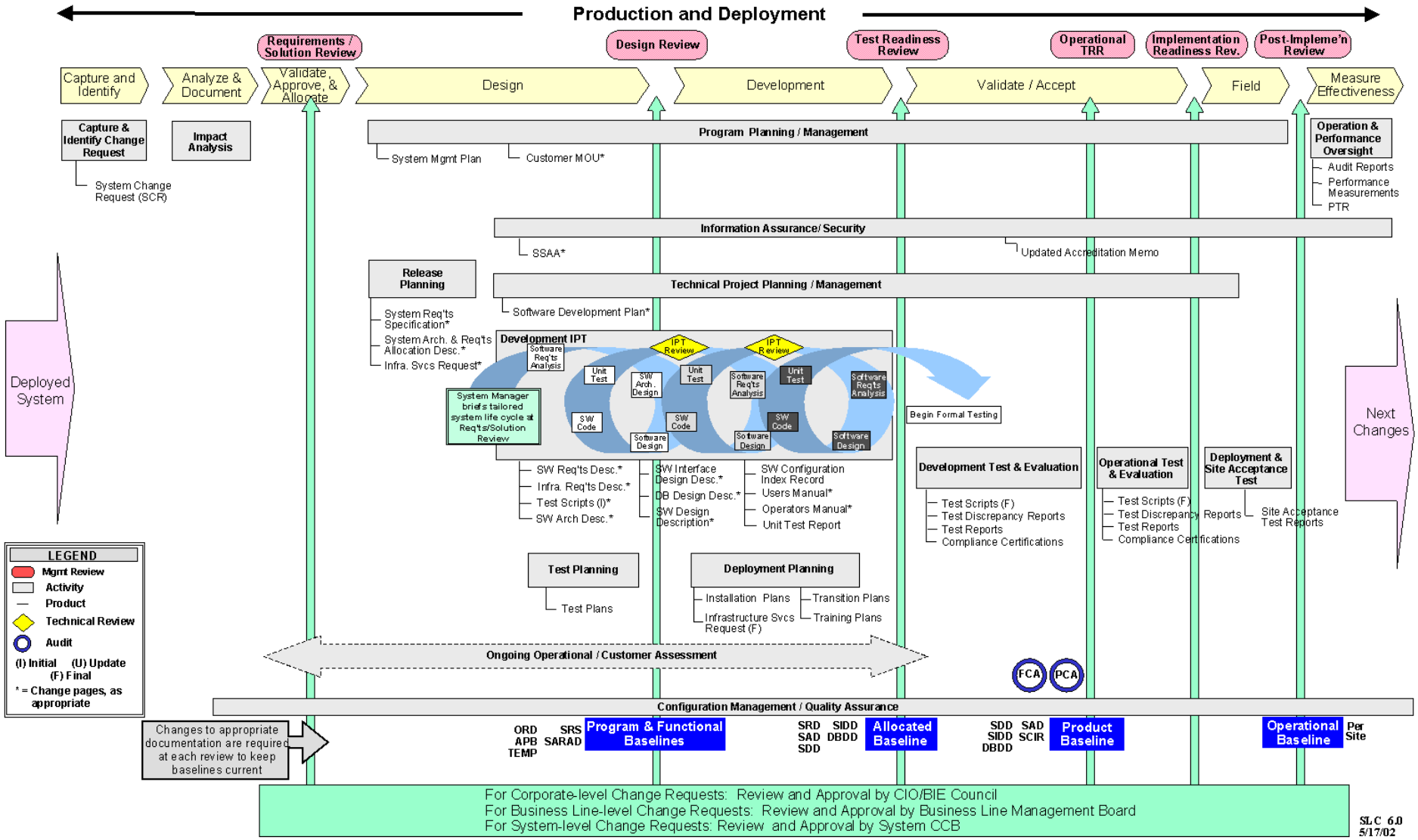
Develop **OR** **Purchase / Customize / Integrate**





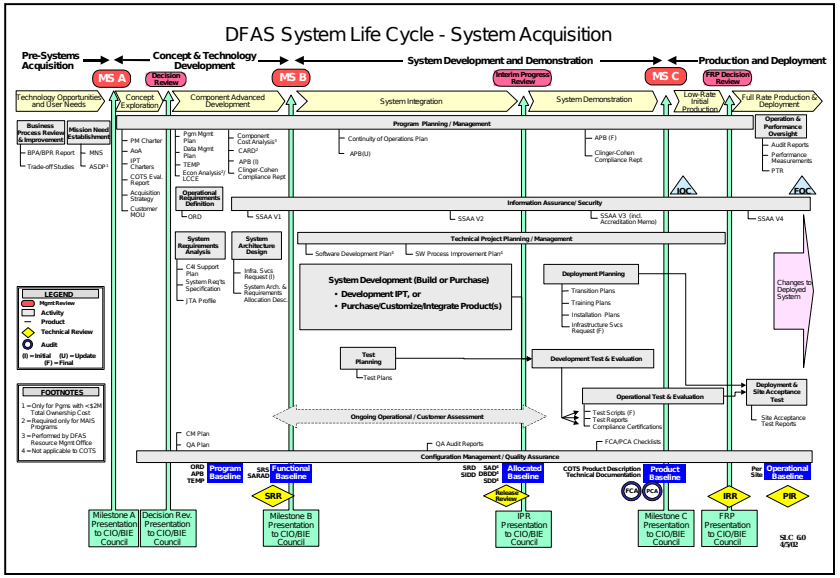
System Maintenance

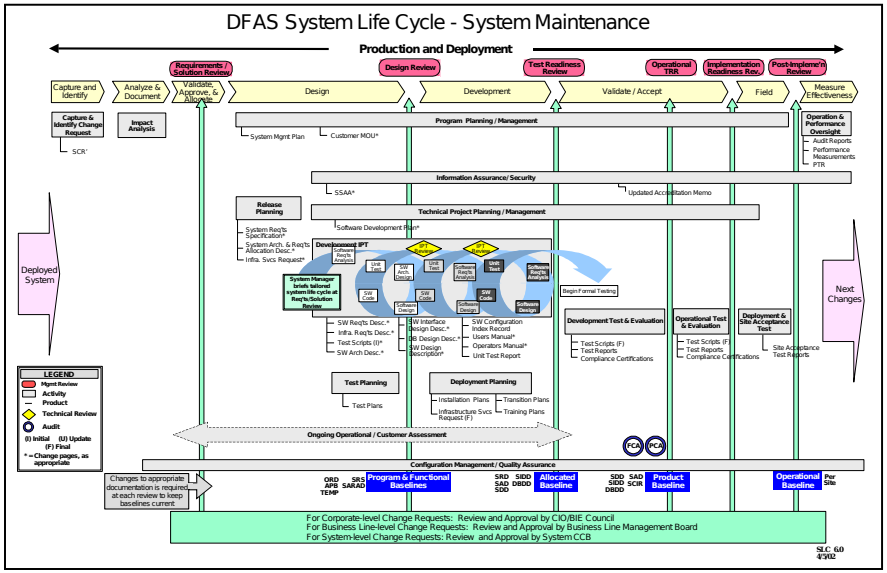
DFAS System Life Cycle - System Maintenance



DFAS System Life Cycle 6.0

System Acquisition



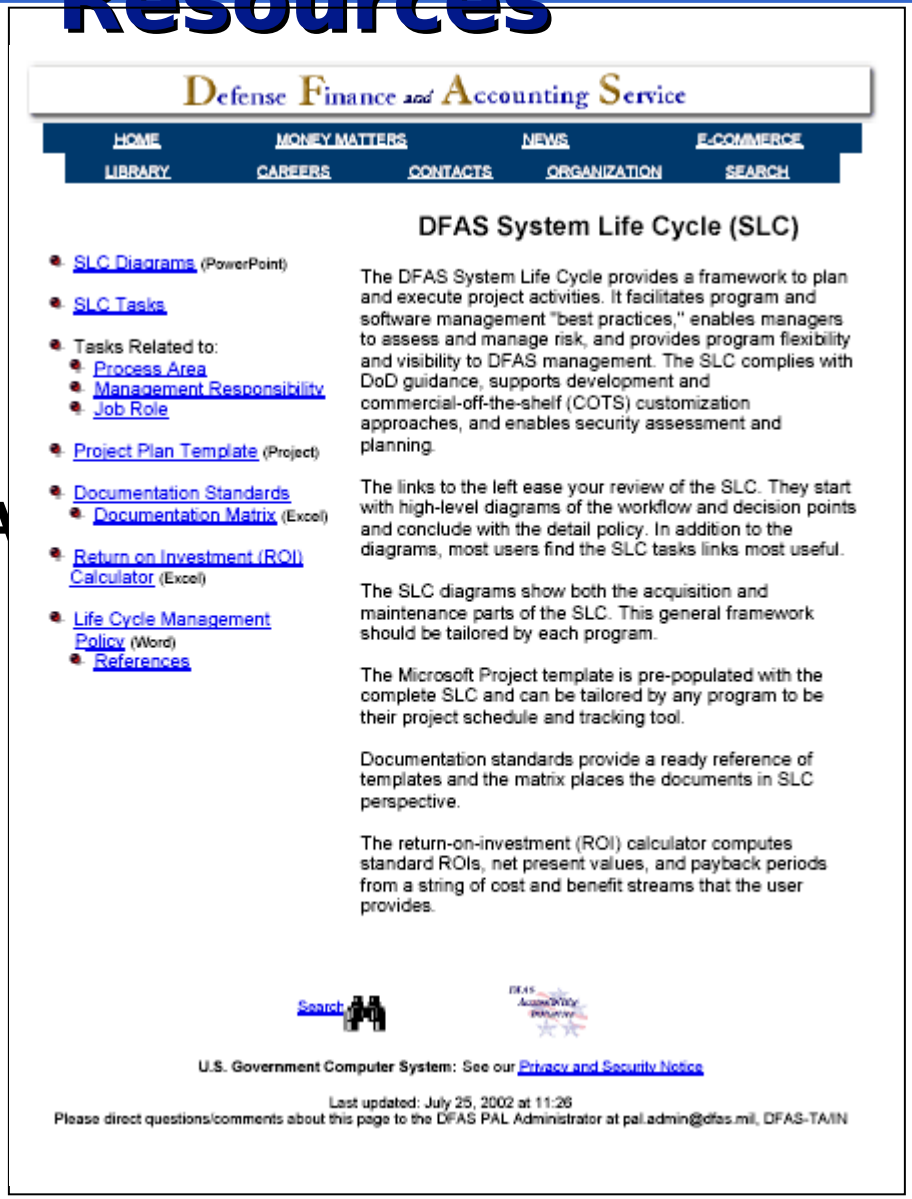


System Maintenance

SLC Web Resources

In the
Process Asset Library (PA
on

- **www.dfas.mil**
- **DFAS e-portal**
- **development web**



SLC Activities

Release 6.0 SYSTEM LIFE CYCLE May 17, 2002

System Life Cycle (SLC) Structure (Standard Process View)

Pre-Systems Acquisition

Business Process Review and Improvement

- Identify and Document Initial Requirements
- Review Current Business Process
- Determine Business Performance Requirements - Business Process Analysis
- Establish Customer Relationship

Mission Need Establishment

- Establish Mission Need

Milestone Review

- Conduct Milestone A Review

Concept and Technology Development

Program Planning/Management

- Appoint Program Manager
- Perform COTS Availability Research
- Perform COTS Evaluation
- Analyze Acquisition and Implementation Alternatives
- Determine Acquisition Strategy
- Determine Life Cycle Strategy
- Establish Integrated Product Teams
- Maintain Customer Relationship
- Conduct Decision Review
- Establish Project Support
- Determine Program Management Plans
- Determine Integration Management Plans
- Prepare Cost Analysis Requirements Description
- Perform Funds Allocation and Execution
- Estimate Life Cycle Resources
- Perform Economic Analysis/Cost-Benefit Analysis
- Establish Data Standardization Strategy
- Establish Test and Evaluation Strategy
- Establish Risk Management Strategy
- Develop Program Objective Memorandum (POM)
- Develop Budget Submissions
- Establish/Maintain Acquisition Program Baseline
- Perform Release Planning
- Plan Clinger-Cohen Act Compliance
- Manage Program Acquisition
- Establish Program Quality Assurance Strategy
- Manage Program Baseline

Operational Requirements Definition

- Define Operational Requirements

System Requirements Analysis

- Identify User/Customer Organizations *(Release Repeatable)*
- Prepare C4I Support Plan
- Define Functional Requirements *(Release Repeatable)*
- Define Information Assurance/Security Requirements *(Release Repeatable)*

SLC Task Details

Release 6.0 SYSTEM LIFE CYCLE May 17, 2002

Task: Define Operational Requirements
Phase: Concept and Technology Development
Activity: Operational Requirements Definition
Process Area: Requirements Development and Management
Management Responsibility: Business Line Executive, Product Line Executive
Task Level: Enterprise, Application

1. **Task Name:** Define Operational Requirements

2. **Purpose:** Define the operational concept for a new system. Define the high-level objective for the system, the type of data to be processed, the users to be supported, the initial operational support requirement, and the operational performance parameters.

3. **Roles:** Functional Analyst

4. **References:**

   a. Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3170.01B (see Enclosure E (Operational Requirements Document Generation))

5. **Entrance Criteria:**

   a. Mission Need Statement (MNS) (Word)
   b. Operational Requirements Document (ORD) Standard (Word)

6. **Procedures:**

   a. Establish a Requirements Integrated Product Team (RIPT)
   b. Define the operational capability
   c. Define the threat (e.g., fraud, security)
   d. Identify shortcomings of existing systems
   e. Determine capabilities required for the system
   f. Determine required program support
   g. Identify force structure impacts (e.g., transition, installation, deployment, and training)
   h. Describe schedule
   i. Describe program affordability for the system
   j. Prioritize requirements using need, cost, and schedule as criteria
   k. Determine supportability and interoperability requirements (C4ISP)
   l. Coordinate operational requirements
   m. Obtain approval for operational requirements

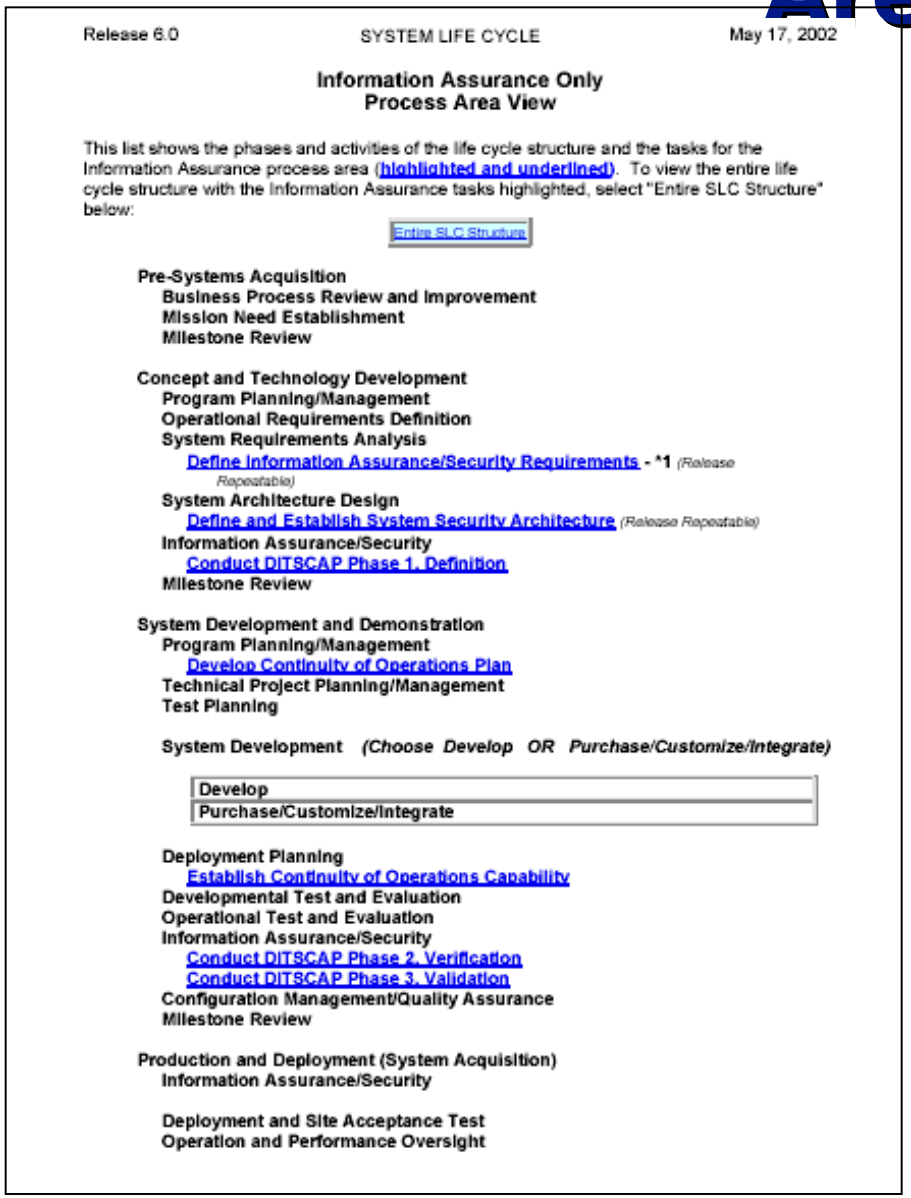
7. **Exit Criteria:**

   a. Operational Requirements Document (ORD) (Word)

8. **Estimation Criteria:**

9. **Measures:**

SLC Views by Process Areas



Release 6.0 SYSTEM LIFE CYCLE May 17, 2002

Information Assurance Only
Process Area View

This list shows the phases and activities of the life cycle structure and the tasks for the Information Assurance process area (highlighted and underlined). To view the entire life cycle structure with the Information Assurance tasks highlighted, select "Entire SLC Structure" below:

Entire SLC Structure

Pre-Systems Acquisition
- **Business Process Review and Improvement**
- **Mission Need Establishment**
- **Milestone Review**

Concept and Technology Development
- **Program Planning/Management**
- **Operational Requirements Definition**
- **System Requirements Analysis**
  - Define Information Assurance/Security Requirements - *1 *(Release Repeatable)*
- **System Architecture Design**
  - Define and Establish System Security Architecture *(Release Repeatable)*
- **Information Assurance/Security**
  - Conduct DITSCAP Phase 1, Definition
- **Milestone Review**

System Development and Demonstration
- **Program Planning/Management**
  - Develop Continuity of Operations Plan
- **Technical Project Planning/Management**
- **Test Planning**

System Development ***(Choose Develop OR Purchase/Customize/Integrate)***

Develop
Purchase/Customize/Integrate

- **Deployment Planning**
  - Establish Continuity of Operations Capability
- **Developmental Test and Evaluation**
- **Operational Test and Evaluation**
- **Information Assurance/Security**
  - Conduct DITSCAP Phase 2, Verification
  - Conduct DITSCAP Phase 3, Validation
- **Configuration Management/Quality Assurance**
- **Milestone Review**

Production and Deployment (System Acquisition)
- **Information Assurance/Security**

- **Deployment and Site Acceptance Test**
- **Operation and Performance Oversight**

SLC Views by Job Roles

Release 6.0 SYSTEM LIFE CYCLE May 17, 2002

Quality Assurance Analyst Only
Practitioner View

This list shows the phases and activities of the life cycle structure and the tasks for the Quality Assurance Analyst role (highlighted and underlined). To view the entire life cycle structure with the Quality Assurance Analyst tasks highlighted, select "Entire SLC Structure" below:

Entire SLC Structure

Pre-Systems Acquisition
- Business Process Review and Improvement
- Mission Need Establishment
- Milestone Review

Concept and Technology Development
- Program Planning/Management
  - Establish Program Quality Assurance Strategy
- Operational Requirements Definition
- System Requirements Analysis
  - Perform System Requirements Review (SRR) - *1 *(Release Repeatable)*
- System Architecture Design
- Information Assurance/Security
- Milestone Review

System Development and Demonstration
- Program Planning/Management
- Technical Project Planning/Management
- Test Planning
- System Development *(Choose Develop OR Purchase/Customize/Integrate)*

Develop
Perform Application Development - *2
Establish Allocated Baseline - *3
Perform SQA Audit of Product
Perform SQA Review of Process
Purchase/Customize/Integrate
Establish Allocated Baseline - *3
Perform SQA Audit of Product
Perform SQA Review of Process

- Deployment Planning
- Developmental Test and Evaluation
  - Conduct Test Readiness Review *(Release Repeatable)*
- Operational Test and Evaluation
  - Conduct Test Readiness Review *(Release Repeatable)*
- Information Assurance/Security
- Milestone Review

Production and Deployment (System Acquisition)
- Information Assurance/Security
- Deployment and Site Acceptance Test
  - Conduct Implementation Readiness Review *(Release Repeatable)*
  - Conduct Post Implementation Review - *5 *(Release Repeatable)*

Document Templates

DATA MANAGEMENT PLAN

1. Introduction. Data management planning is critical to the process of system design and development. Business functions and the automation that supports these processes must provide a coherent method for capturing, processing, storing, and providing data associated with an automated information system (AIS). Data elements and their definitions/values have to be documented in a standard way so that the functional users and managers and technical designers and developers understand what data is used by the application and how it is to be processed and used across the enterprise and cross-functional communities. DFAS has made a major commitment to bring standardized data methodology and continuity into and through the Concept and Technology Development and System Development and Demonstration phases of the system life cycle process. The following instructions and template are meant to be a guide on how to assemble the components for a meaningful Data Management Plan (DMP).

2. Purpose. Data standardization reduces the cost, complexity, and overall level of resources expended on the development of software and computer system data components. The purpose of this DMP guide is to provide an assessment framework of data products that should be for a system/application. This DMP also describes how the system/application managers will proceed with developing the fundamental data management outputs for use of standard data or to transition the systems/application for future data standardization.

3. Scope. This plan applies to all DFAS system management, development, and maintenance activities.

4. Inventory of Data Products. The type of system that is in development/maintenance determines the alternatives for mandatory and optional data management products. The DFAS Policy and Architecture team can assist you in determining what data management products best fit your needs. The recommended data products are listed below with a brief description.

Entity Relationship Diagram (ERD). A graphic representation that presents major entities and their attributes and relationships.

Data Element Dictionary. A hard copy document or digital repository of data elements and their meta-data used by one or more systems; a repository of information describing the characteristics of data used to design, monitor, document, protect, and control data in information systems and databases. Lists all of the data elements used in the application with a description/definition of codes, format of data, steward, implementation business functions, table usage, and denormalization.

Data Management Process Description. An overview of the process of managing the data elements within a system/application along with the various steps for determining the impact and cost.

Data Element Mapping. Identification and linking of migration system data elements to one or more equivalent Standard Data Elements, the DoD Finance and Accounting Data Model

Data Management Products for Life Cycle Management

	Data Management Process Description	Entity Relationship Diagram	Data Element Dictionary	Data Element Mappings to Standard
Type I *				
Legacy System	Mandatory	Optional	Mandatory	Mandatory
Type II *				
COTS/GOTS/ERPs	Mandatory	Optional	Mandatory	Mandatory
Mission Critical - COTS	Mandatory	Optional	Mandatory	Mandatory
Non-Mission Critical - COTS	Mandatory	Optional	Mandatory	Optional
Less than $2M - COTS	Mandatory	Optional	Mandatory	Optional
Mission Critical - COTS Mod	Mandatory	Optional	Mandatory	Mandatory
Non-Mission Critical - COTS Mod	Mandatory	Optional	Mandatory	
Less than $2M - COTs Mod	Mandatory	Optional	Mandatory	
Type III *				
Mission Critical - Development	Mandatory	Mandatory	Mandatory	N/A
Non-Mission Critical - Development	Mandatory	Mandatory	Mandatory	Optional
Less than $2M - Development	Mandatory	Mandatory	Mandatory	Optional

*** DCII System/Application Types. (I, II, III or N/A)**

Type I. Minimal data element documentation is needed since the system is usually a legacy system and will be replaced in the near future with a migratory system (each data management product will be designated by a 'I').

Type II. Type II systems will need information for the application program interfaces (APIs) that will interface with the DFAS Corporate Database (DCD)/(DFAS Corporate Warehouse (DCW). These data management products are marked with a 'II'.

Type III. Type III systems will need the all of the DCD/DCW related data management products for tracking their data in the DFAS Architecture.

Milestone Briefing Guidance

MILESTONE C DECISION BRIEF
PRESENTATION OUTLINE

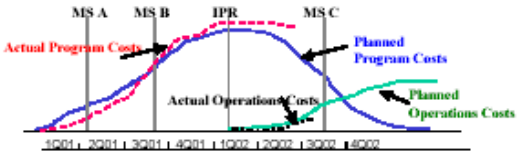
The Milestone C Decision Brief is a set of viewgraphs covering the following topics in a sequence selected by the briefer. Some of the material is updated from previous review briefs.

1. Architectural Summary

- *Show and discuss the new concept of operation using the OV-1 and OV-2 charts; and others as needed. For OV and SV charts, see DFAS documentation standard for C4I Support Plan).*
- *Show a schematic diagram of system components and internal interfaces (SV-1 diagram)*
- *Show diagram of external interfaces (SV-4 diagram)*

2. Cost Performance

- Summary Costs. *In a chart similar to below, provide a table and chart showing costs and benefits by year and milestone, updated from the Milestone B Decision Brief and the Interim Progress Review (IPR).*



Program Costs FY	Prior Yrs	02	03	04	05	To Comp	Total
Capital - Plan/Budget							
Capital - Actual							
Operating - Plan							
Operating - Actual							
Operations Costs							
Capital - Plan							
Capital - Actual							
Operating - Plan							
Operating - Actual							
Total Planned Costs							
Total Actual Costs							
Benefits							

- Return on Investment. *In a table similar to below, updated from the Milestone B Decision brief and the IPR, show the net present value of future benefits, the payback period, the savings-to-cost ratio, the benefits-to-cost ration, and the internal rate of return.*

Future Costs		Future Benefits		Net Present Value of Benefits	Payback Period (Years)	Return on Investment		
Nominal	Present Value	Nominal	Present Value			Savings-to-Cost Ratio	Benefits-to Cost Ratio	Internal Rate of Return
$12,000	$10,155	$27,600	$19,184	$9,029	8	1.5	1.9	14%

- Detailed Costs. *In a table similar to below, show approved estimated costs (from Life Cycle Cost Estimate (LCCE) or other approved document) for major cost categories by year versus actual expenditures (for past years) or proposed revised estimates (for current and future years). Cost categories listed below are examples only. Highlight any changes from the IPR brief.*

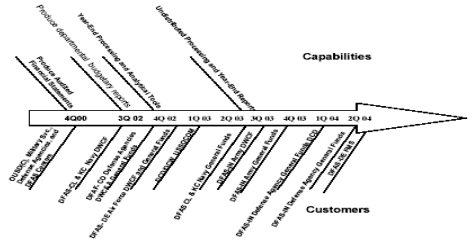
Cost Category	Year - 1	Current Year	Year + 1	Year + 2	Etc.
PMO Operations					
Requirements Gathering/Analysis					
Information Assurance					
TSO Cost					
COTS Product Buy/Support					
Training					
Network Infrastructure (DISA)					
Development Testing					
Operational Test and Evaluation					
Maintenance					
Total					

3. Schedule Performance

- *In a table similar to below, list major milestones, their originally planned completion dates, and either their actual completion dates (for completed tasks) or, if relevant, a revised completion date. Milestones shown are examples only.*

Milestone	Original Completion Date	Revised Estimated Completion Date	Actual Completion Date
Requirements Analysis			
Milestone B			
Development – Release 1			
DT&E – Release 1			
Development – Release 2			
DT&E – Release 2			
Milestone C			
OT&E			
IOC			
FOC			

- Deployment schedule. *Identify what capabilities are delivered to what customers and users in what releases. Consider using a fishbone diagram similar to that shown below. This is updated from the Milestone B Decision brief and the IPR.*



Making it Easy for Programs

- “How to” procedures; “cookbooks”
- Role-specific guidance
- Templates
- Tailoring assistance (DFAS-DTC)
- Training

SLC 6.0

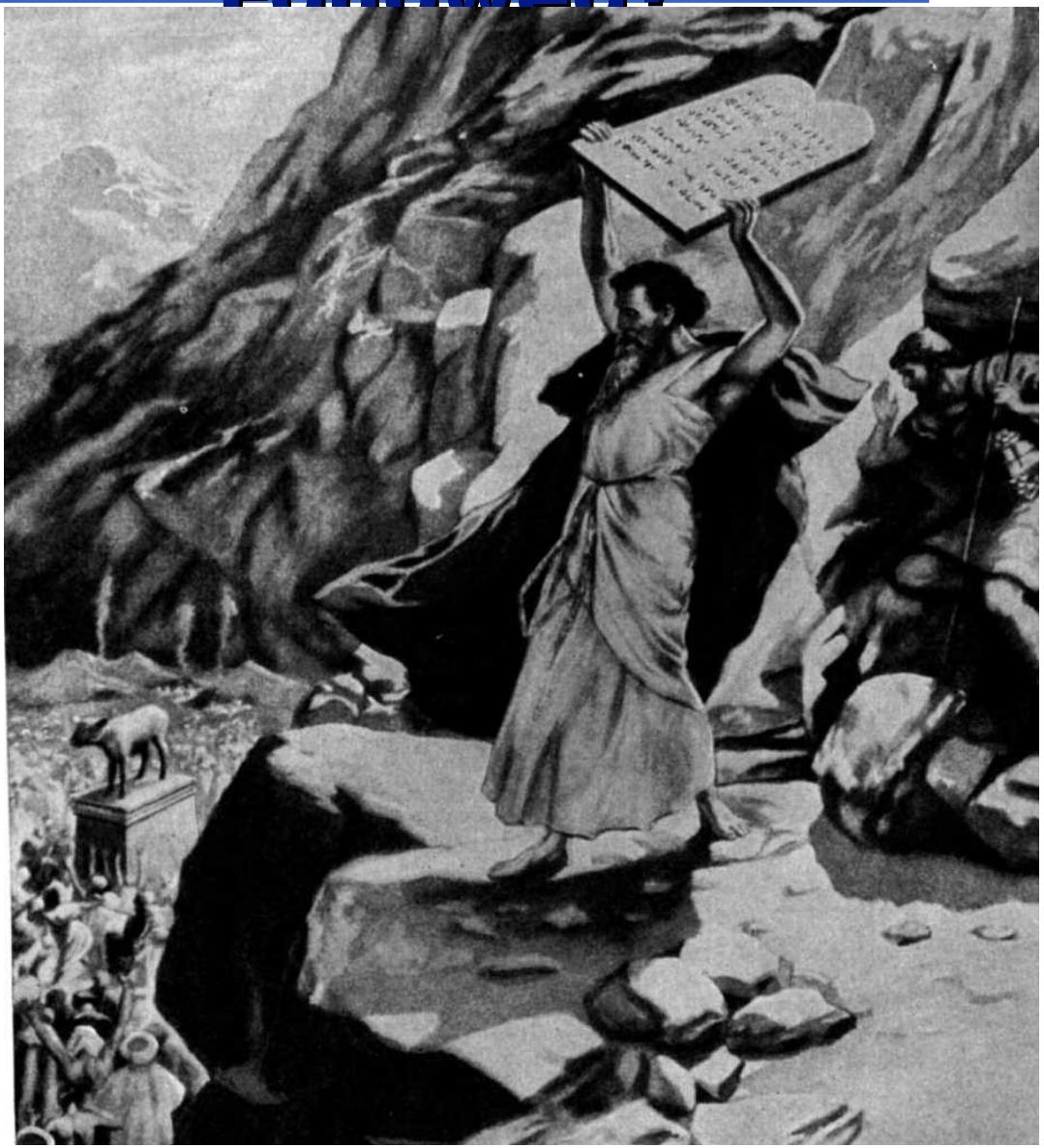
- LCM Policy
- SLC Diagram
- SLC detail of tasks, documents
- Team LCM training materials
- Tailoring guidance
- Web tools

SLC Benefits

- Management Visibility
- Tailoring to Program Needs
- Risk Reduction
- Alignment
  - DoD requirements; Clinger/Cohen Act; FMFIA
  - Capability Maturity Model (CMM) objectives
  - DFAS enterprise goals
- Consistency
- Assessment
- Repeatability
- Better Decision Making

Will the SLC be Followed?

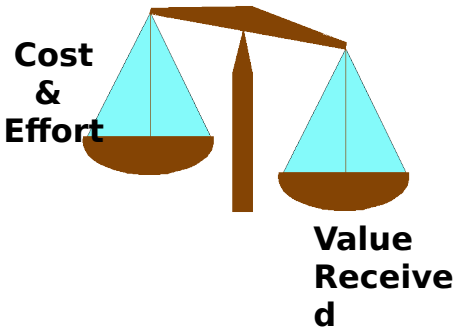
- **Why should DFAS be willing to follow a standard?**



SLC's Scorecard Value (1)

- **Customer**
  - Understanding the process and checkpoints clearly
  - Visibility of Info. Assurance and Quality throughout
  - Ensure that requirements are adequately handled
  - Ability to rely on DFAS commitments

- **Financial**
  - Better ability to predict and justify costs
  - Consistency of cost justification across programs
  - Better tracking of prediction vs. performance over time



SLC's Scorecard Value (2)

- **Internal Business Processes**
  - Build consistency & repeatability among programs
  - Enable better decisions on use of resources
  - Enable fair comparisons among programs
  - Uncover problems and issues earlier

- **Growth and Learning**
  - Better understanding of program roles and responsibilities throughout DFAS
  - Enable personal responsibility for job quality
  - Consistency allows executives to concentrate on meaning more than mechanics

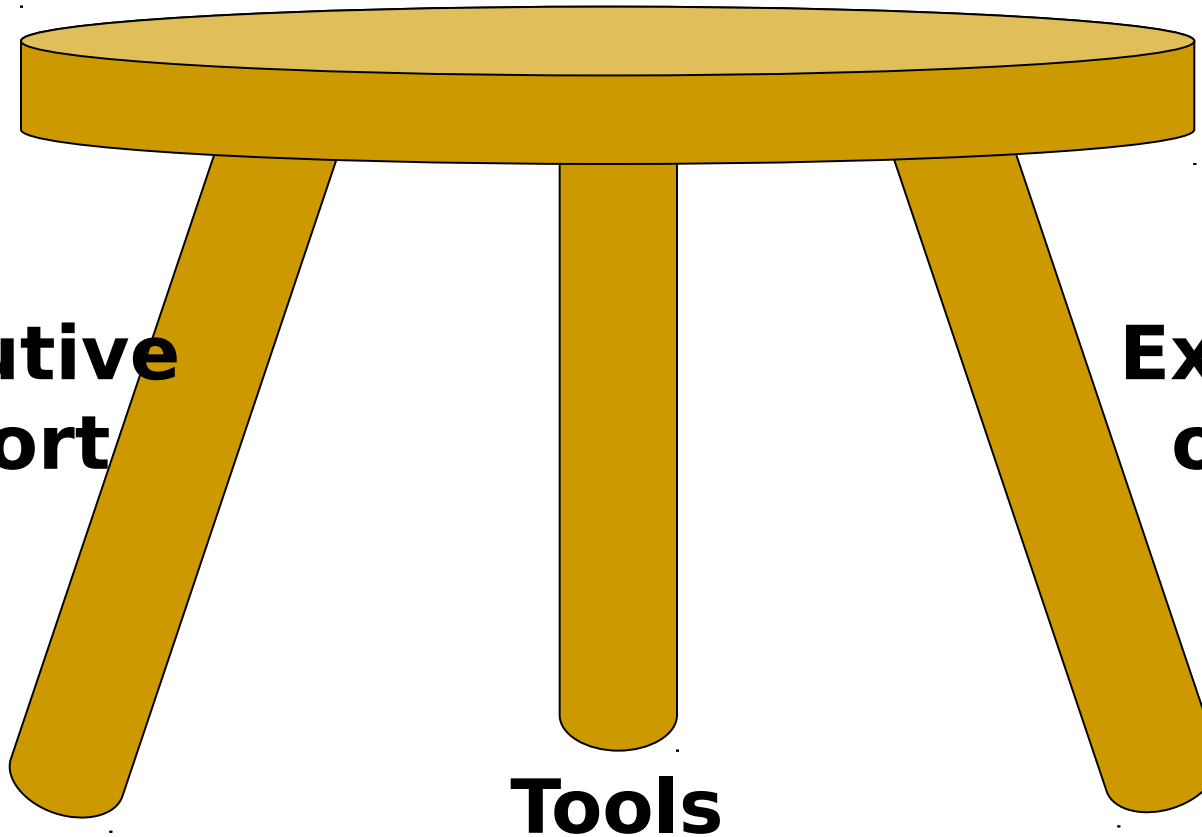
SLC Supports DFAS Strategic Goals

DFAS Goal*	SLC's Contribution
Vision objective: One organization, One identity	SLC provides a consistent framework for organizing, tracking, and reporting on programs across DFAS; Enables the same meaning for executive and managerial program decisions across DFAS
Ensure everyone is working toward the same vision and can connect what they're doing to make the vision a reality	Visibility of the acquisition process, providing understanding of development milestones and how current work fits into the whole picture
Deliver business intelligence to enable better decisions	SLC enables DFAS to apply business intelligence to its own acquisition of information systems
Fully satisfy customer requirements and aggressively resolve problems to deliver best value services	Regular process that requires customer participation and resolution of requirements consistently across all DFAS programs; Clear and compatible problem resolution process no matter which part of DFAS is involved
Use performance metrics to drive best business practices and achieve high quality results	SLC provides a consistent framework in which performance metrics become meaningful, comparable, testable, and trackable
Embrace continuous learning for our work force to ensure critical, high quality skill sets	Clear definition of job roles and responsibilities and how they relate to other job roles; Enables people to see beyond their immediate tasks to understand the whole

* source: www.dfas.mil/agency/strategy.htm

Maximizing DFAS Benefits

DFAS Value Through SLC



Executive Support

Expectation of Use

Tools

Summary

- **LCM enhances visibility, risk reduction, consistency, and confidence... leading to the ultimate success of the Program**

- **DFAS has a single system life cycle**
- **SLC covers both development & maintenance**
- **SLC focuses on activities / reviews**
- **Programs tailor the DFAS SLC to suit**
  - Implementation Strategy
  - Complexity / Cost / Oversight
  - Management Risk
- **SLC is accessible (PAL on e-portal & web)**